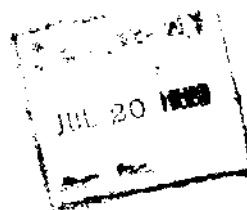


4137



Form 504
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
State: <i>California.</i>
11-5013
DESCRIPTIVE REPORT.
Hydrographic Sheet No. <i>A</i> 4137
LOCALITY:
<i>San Francisco Bay, from</i>
<i>Alameda - Pt. Alisadero to</i>
<i>Pt. San Bruno - Mulford's</i>
<i>Ldg.</i>
101
CHIEF OF PARTY:
<i>F. G. Engle, H. G. E.</i>

4137

4137

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

## HYDROGRAPHIC TITLE SHEET

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

Register No. 4137

State . . . California . . . . .  
General locality . . San Francisco Bay . . . . .  
Locality . . . . ~~Southern Part~~ Alameda to Pt. San Bruno  
Chief of party . . F.E. Engle, H.&G. E. . . . . .  
Surveyed by . . F.G. Engle, H&GE. & F.L. Peacock, Jr, H&G E.  
Date of survey . . October 9, 1919, to March 17, 1920. . .  
Scale . . . . 1:20,000 . . . . .  
Soundings in . . Feet. . . . . .  
Plane of reference . . Mean of the Lower low waters. . .  
Protracted by L.A. Eggert Soundings in pencil by J.D. Torrey  
Inked by A. Baer ~~L.A. Eggert~~ . . . . .  
Verified by . . . . .  
Records accompanying sheet (check those forwarded):  
Des. report, 5 Tide books, 19 Marigrams, 2 Boat sheets,  
15 Sounding books, --- Wire-drag books, --- Photographs.  
Data from other sources affecting sheet . . . . .

Remarks:

Description Report  
To accompany hydrographic sheet A.

San Francisco Bay, from Alameda - Point Avisadero to Point San Bruno - Mulford's Landing, Revision, under instructions dated July 25, 1919.

The inshore development between Point Avisadero and Point San Bruno was done by 24' motor sailing launch in charge of Mr. F. L. Peacock, Jr. H. & G. E., starting with an inexperienced recorder and leadsmen. The launch work was carried a little beyond the safe depth for the NATOMA. The tidal observations for this section were made at Hunters Point, connecting the gauge with Colbert's bench marks of 1917, and at South San Francisco where new bench marks were established and simultaneous comparison made with the automatic gauge at Union Iron Works. This automatic gauge at Union Iron Works was kept in continuous operation and was connected with the old bench marks at that place.

The only change found in the section between Hunters Point and Point San Bruno is the channel leading to the Shaw Batcher ship yard and the shoaling on the north side by the dredgings from the channel. The channel is 100 - 150 feet wide and has a depth of 12 - 15 feet. It is marked by dolphins on either side. These dolphins are shown on a plan which accompanies the topographic revision sheet.

The channel leading into the South San Francisco wharves carries a least depth of 15 feet. The entrance is marked by a red conical flashing buoy on the North side and the channel is marked by piles, as shown on the smooth sheet. There are three rows of piles, the channel lying between the southerly rows.

The shoal area on the East side of the Bay between Mulford's Landing and Alameda was sounded by motor sailer, Mr. F. L. Peacock in charge. Tidal observations were made at an oyster house off Mulford's Landing. A simultaneous series was observed with Union Iron Works automatic gauge. It was not possible to establish bench marks as the gauge was nearly one-half mile off shore, it being necessary to establish it out this distance to obtain the required depth.

For the section North of Bay Farm Island, tidal observations were made at the wharf of the Alameda Municipal Electric Light Plant, connecting with Colbert's bench marks. Another gauge was established in San Leandro Bay at the eastern side of the entrance to the Oakland estuary for the

work in San Leandro Bay. Both of these gauges were compared with Union Iron Works by simultaneous series.

No changes of importance are found in the entire area between Mulford's Landing and Alameda. These waters are very little used and only by local scow schooners which carry hay to the dairy farms. There are no channels.

The approach to San Leandro Bay is blocked by a bar having a depth of 2 1/2 feet at M.L.L.W. off the Grand Boat Club wharf at Alameda. The south channel leading to San Leandro Bay is little used, except by small pleasure craft. The bridge between Alameda and Bay Farm Island has a hand operated draw and is very slow in opening.

The central area between the launch work on either side of the Bay was sounded by the ship, and tidal observations were made at one or the other of the gauges, Hunters Point, South San Francisco, Alameda and Mulford's Landing, the aim being to use the gauge nearest to the work for the day.

A slight increase is noticed over the depths shown on chart 5531 amounting to from one to three feet. No other changes.

#### Organization of Party

##### Launch work.

24' motor sailor, F.L. Peacock, Jr. H. & C.E., in charge, R. V. plotting.  
L.A. Eggert, A. D., L. V.  
Do Witt T. Brown, W. O. 1-c, recording.

##### To p.

Sheet 3661 - Point Avisadero to Union Iron Works.  
3654 - Point Richmond, Point San Pablo and Point San Pedro.  
3659 - Exposition Grounds, one mile below Point Lobos.  
-- - Exposition Grounds - Pier 41.  
New Sheet -- - Point Avisadero - Point San Bruno  
" " - Mulford's Landing to Bay Farm Island, including  
East end of Oakland Estuary.  
-- - Alameda.  
3653 - Oakland - Brooks Island.

*F. G. Eagle*  
*Chief of Party*

## STATISTICS SHEET NO. A

Date 1919	Letter	Vol- ume.	Posi- tion.	Sound- ings.	Miles, statute.	Vessels.
October 9	a	1	80	804	12.5	Launch
October 10	b	1	113	851	18.1	"
October 13	c	1	93	874	14.7	"
	d					
	e					
October 13	f	2	105	800	15.3	Launch.
October 17	g	2	114	712	14.9	"
October 20	h	3	94	718	15.3	"
	i					
November 5	k	3	110	793	16.6	"
November 6	l	3&4	124	1289	23.6	
November 7	m	4	70	419	6.0	"
November 11	n	4	71	614	10.6	"
November 25	o	4	43	474	7.6	"
December 20	p	4&5	38	338	3.4	"
December 29	q	5	88	771	14.0	"
December 30	r	5	73	667	12.6	"
December 31 1920	s	5&6	76	784	13.6	"
January 6	t	6	81	801	16.2	"
January 9	u	6	96	707	13.1	"
January 12	v	6	54	494	8.8	"
January 17	w	7	112	967	21.9	"
January 19	x	7	118	943	19.3	"
January 30	y	7&8	130	1139	24.0	"
January 21	z	8	61	596	12.6	"
Ford.			1932	18092	317.6	

# STATISTICS SHEET NO. 1

For each Volume.

Volume	Miles, statute.	Positions.	Angles.	Soundings.	Day Letters.
1	45.3	285	472	2139	a, b, c.
2	30.2	219	438	1512	f, g.
3	44.4	277	554	2309	h, k, l.
4	37.2	259	519	2310	l, n, o, p.
5	42.1	239	484	2220	r, q, r, s.
6	40.5	232	464	2021	s, t, u, v.
7	45.3	253	506	2154	w, x, y.
8	42.5	313	436	1894	y, z, a'.
9	41.0	251	494	2031	b', c', d', e'.
10	37.1	221	439	1498	e', f', g'.
11	65.9	327	654	2159	A, B, C.
12	38.3	242	474	2068	h', i', k', l'.
13	88.9	363	726	1978	D, E, F.
14	54.5	199	398	933	G, H.
15	13.2	111	222	855	l', m', n'.
Total	686.7	3697	7280	28567	

STATISTICS SHEET NO. A  
Cont.

Date 1920	Letter	Volume	Positions	Soundings	Miles, statute.	Vessels.
St. Ford.			1932	16092	317.8	
January 22	a'	8	51	457	10.0	Launch
January 27	b'	9	49	414	8.5	"
January 29	c'	9	43	396	8.1	"
January 30	d'	9	85	656	12.7	"
February 2	e'	9&10	117	926	19.5	"
February 4	f'	10	60	460	8.0	"
February 11	g'	10	118	1175	21.3	"
February 12	h'	12	9	67	1.2	"
February 13	i'	12	113	1059	22.7	"
February 24	k'	12	76	596	8.6	"
February 25	l'	12& 15	88	726	12.1	"
March 16	m'	15	9	78	0.8	"
March 17	n'	15	58	395	6.3	"
February 10	A	11	66	513	17.5	Natoma
February 11	B	11	119	778	32.0	"
February 13	C	11	80	498	21.8	"
February 16	D	11+13	159	1027	39.5	"
February 19	E	13	79	308	19.0	"
February 20	F	13	143	674	33.5	"
February 21	G	13+14	147	777	33.5	"
February 24	H	14	86	427	27.5	"
Total			3897	28567	388.7	

STATISTICS. SHEET NO. A  
Information on tide staffs used.

Station, name.	Letters on days, on which used.
----------------	------------------------------------

Union Iron Works,	a.
Hunters point & Union iron Works.	b.
Hunters Point.	c.
Hunters Point.	d.
Hunters Point.	e.
Hunters Point.	f.
Hunters Point.	g.
Hunters Point.	h.
Hunters Point.	i.
South San Francisco	k.
South San Francisco	l.
South San Francisco	m.
South San Francisco	n.
Collins Oyster House	o.
Collins Oyster House	p.
Colling Oyster House	q.
Collins Oyster House	r.
Colling Oyster House	s.
Collins Oyster House	t.
Collins Oyster House	u.
Collins Oyster House	v.
Collins Oyster House	w.
Collins Oyster House	x.
Collins Oyster House	y.
Collins Oyster House	z.
Collins Oyster House	a'.
Collins Oyster House	b'.
Collins Oyster House	c'.
Collins Oyster House	d'.
Collins Oyster House	e'.
Collins Oyster House	f'.
Alameda, Municipal Wharf	g'.
Union Iron Works.	h'.
Alameda	i'.
Alameda	k'.
Alameda & San Leandro Bay	l'.
Alameda	m'.
Alameda	n'.
Mulford's (Collins Oyster House)	A.
"	B.
"	C.
South San Francisco	D.
Alameda	E.
"	F.
" & Hunters Point	G.
Hunters Point.	H.



STATISTICS SHEET NO. A  
Tidal information.

Station, location.	Reading on gauge.		
	Plane of ref.	Lowest tide observed	Highest tide obs.
San Leandro Bay, Mercantile Box Co. Lumber wharf.	4.50	4.5	11.45
South San Francisco, Steiger, Terra Cotta works, West pier.	2.40	2.3	10.55
Hunters Point.	3.88	4.5	11.30
Mulford's Landing, Collins Oyster House.	-0.40	0.1	8.70
Alameda, Municipal Electric Light plant wharf.	4.05	4.0	11.10

UNIT FOR SOUNDINGS: Feet.

PLANE OF REFERENCE: Mean of the Lower Low Waters.

Verification Report of Hyd. 4137.

The plotting of positions and of soundings on this sheet was of a very high order. The few positions which were in doubt or in error were corrected by the plotting of soundings. Relatively few errors were found in the plotting of soundings, and most of those were due to the poor condition of parts of the records. The spacing save for two or three instances was correct throughout. The field party's work in this report was very good.

There are a few soundings on this sheet whose depths are questionable. the 2 ft. sdg., 53-54 b. vol. 1, p. 26; 3 ft. probably 4 ft. (1 fm. increase) 44<sup>5</sup>, vol. 1, p. 44; 5 ft. 41-42 b. vol. 1, p. 28. As these positions were in the area where the P. R. states an inexperienced leadsmen was used, they could probably be repeated with safety; though there is no note in the records to this effect.

Position 19 shows "pile awash" with an adjacent sounding of 75 ft. As this is rather deep water for a pile awash, and as the adjoining hydrography covers this immediate locality with no mention of such further investigation may be necessary.

There is a poor crossing of sounding at 13a and 44-45a, namely 4 ft and 15 ft. The doubtfulness of 45a may account for the discrepancy. There are also two or three poor "crossings" in the development of the channel leading south San Francisco wharves and the channel of San Leandro Bay.

The two channels of the west side of the sheet

Return 9 by order of A.C.G.

A.C.G. recommends that these sheet soundings be retained & checked by P.R.

2

are well developed as is also that of San Francisco Bay on the east.

From a study of the channel leading into the Shaw Brothers ship yards it appears that the hydrographer party did not locate all of the dolphins marking this channel as shown on the sub-plan of the corresponding topographic sheet. On this latter there appear to be more dolphins and bottom areas. This plan should evidently be used in preference to the hydrographic sheet for this feature.

Attention is called to the uncertainty of bottom characteristics. Within comparatively small areas a variety of the bottom is recorded which seems most unusual; e.g., sph. sand, brk. mud, yf. sand, brown sand. The leadman apparently tried to make too fine a distinction.

The records as a whole are well kept. That part of the records however which was corrected due to change in values and line correction is to be severely criticised. The corrected values were made in heavy blue pencil making the recording illegible and requiring frequently that the draftsmen make the computation himself to be sure of the figure.

All of the new hydrography to the north agrees perfectly with the work on this sheet save for two soundings lying adjacent to pos. 17F-18F,  $\frac{1}{4}$  mile S.E. of S. Stack, Huller Pt. There is a difference of 15 ft.

Respectfully submitted,  
Alvin Isaac,  
Draftsman.

AND REFER TO NO. 41-EMK

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

September 13, 1920.

Division of Hydrography and Topography: *RDA*

Division of Charts: ✓

*Tide Records*

Tidal reductions are approved in  
15 Vols. of sounding records for

HYDROGRAPHIC SHEET 4137

San Francisco Bay, California.  
F.G. Engle in 1919 and 1920.

Plane of reference is  
Mean lower low water, reading

- 1.60 ft. on tide staff at Union Iron Works, San Francisco.
- 3.88 ft. on tide staff at Hunters Point
- 2.25 ft. on tide staff at Terra Cotta Works, So. San " Canal.
- 0.39 ft. on tide staff at Collins Oyster House, off Mulford's  
Landing.
- 4.05 ft. on tide staff at Municipal Pier, Alameda.
- 4.50 ft. on tide staff at Mercantile Box Co. Wharf, San  
Leandro Bay.

Condition of records, satisfactory.

*G. T. Tule*

Chief, Section of Tides  
and Currents.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
WASHINGTON

SECTION OF FIELD RECORDS.

Report on Hydrographic Sheet No. 4137.

Surveyed in 1920.

Chief of Party: F. G. Engle.

Surveyed by F. G. Engle and  
F. L. Peacock.

Protracted by L. A. Eggert.

Soundings plotted by J.D. Torrey.

Verified and inked by A. Baer.

1. The records conform to the General Instructions.
2. The plan and character of development fulfill the requirements of the General Instructions, except that there were practically no cross sounding lines.
3. The plan and extent of development satisfy the specific instructions.
4. The sounding line crossings are adequate.
5. It was possible to completely draw the depth curves.
6. Only the protracting was done by the field party.
7. Office draftsmen did not have to do over any part of the drafting done by the field party.
8. Junctions with adjacent sheets are satisfactory except 400 meters southeast of Hunters Point. As the depths are greater than 50 feet at this place the discrepancy is not important.
9. No further development is required in the area covered by this sheet.
10. There are several shoal soundings in the inshore development south of Hunters Point. These are probably errors of one fathom in recording or reading lead line. Capt. Engle stated that the recorder and leadsman were inexperienced. As there were several obstructions discovered in this survey the shoal soundings were retained. Their locations are not of sufficient importance to warrant further examination.
11. Rating of the work: Character and scope of the surveying - Excellent.  
Field Drafting - Excellent.
12. Reviewed by E. P. Ellis, January, 1921.
13. Two copies of this report to be sent to Hydrography and Topography Division.